

Improving school attendance in NYC public elementary school students aged 5-11 through a comprehensive handwashing program

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The Issue of School Absenteeism

- ▶ Chronic absenteeism has **negative ramifications** for both **the individual and the entire class**
 - ▶ Chronically absent students AND their classmates have lower math and reading scores compared to classes without absenteeism (Gottfried., 2019)
- ▶ Pediatric absences are associated with **familial socioeconomic burden** by resulting in **parental absence from work**
 - ▶ All ER-evaluated pediatric viral URIs resulted in patients missing an average 3.8 days of school and parents missing an average 2.1 days of work (Paalanne et al., 2022)
- ▶ The **COVID-19 pandemic** created **new barriers to school attendance**
 - ▶ Including illness-specific anxieties and stressful school return due to pending academic catch-up (McDonald et al., 2023)

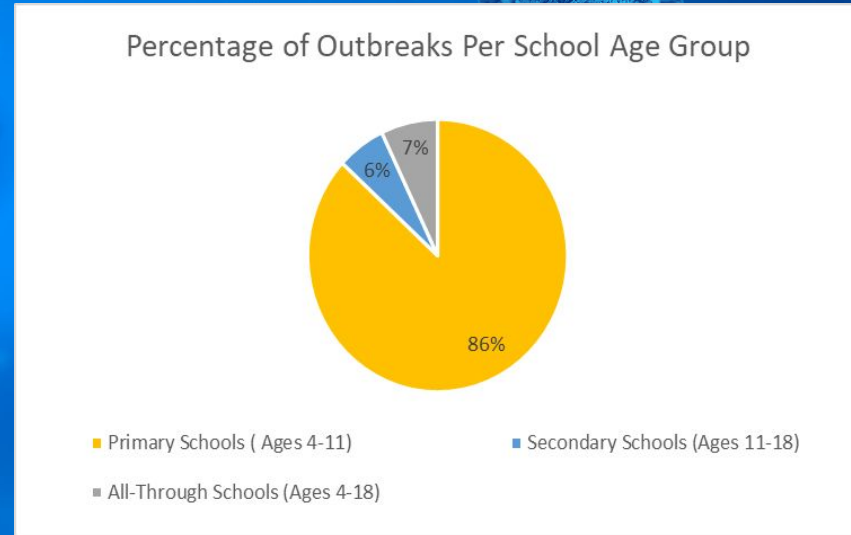
Do Elementary School Students Show Higher Levels of Disease?

- ▶ A retrospective analysis of schools in England, UK identified factors associated with outbreaks.
- ▶ The study population were schools of primary education (ages 4-11 years), secondary education (11-18 years), and all-through schools (ages 4-18 years) and outbreaks were recorded for '16/'17 and '17/'18 academic years.'
- ▶ “An outbreak is defined as two or more cases linked in time or place, or a greater than expected rate of infection compared with the usual background rate” (Donaldson et al., 2020).

(Donaldson et al., 2020)

Do Elementary School Students Show Higher Levels of Disease? (continued)

- ▶ Primary schools (aged 4-11) accounted for **86%** of outbreaks, whereas 7% were all-through schools and 6% were secondary schools (age 11-18).
- ▶ Author concludes that younger children have greater vulnerability to infection, higher virus shedding, and increased risk of outbreaks due to poorer levels of hand and respiratory hygiene.
- ▶ Suggests infection prevention measures such as handwashing and environmental cleaning (Donaldson et al., 2020).



(Donaldson et al., 2020)

Are Elementary School Students Not Washing Their Hands Enough?

- ▶ Observational Study was performed from August to October 2010 among Dutch Day Care Centers (DDCs) to assess caregivers' and children's adherence to handwashing guidelines.
- ▶ Dutch Hand Hygiene (HH) guidelines included washing before eating, after toilet use, and after playing outside.
- ▶ Among 2318 children only **31% had overall adherence to HH guidelines**; only 48% washed after toilet use or playing outside; 15% washed before eating (Elise van Beeck et al., 2015).
- ▶ 40% of the observed playrooms had inappropriate facilities for children to perform proper HH.
- ▶ Authors suggest future interventions that focus on improving hand hygiene behavior, however only after improving hand hygiene facilities.

(Elise van Beeck et al., 2015)

The case in South Africa

- A Study was conducted in South Africa on hand washing after urination and defecation in early childhood centers
- 55.7% of guardians reported washing the children's hands after urination
- 87.3% of guardians reported washing the children's hands after defecation
- Educators were less likely to wash hands after urination than any other activity where the P value was $p=.003$
- Children who did not wash hands after urination were developing more cases of diarrhea than the hand washing group
- This created more absences in the school year, imposing a great difficulty on the children's life (Ntshangase et al., 2022)

Best Practices and their Observed Improvements

- ▶ While researching this topic, we came across two evidence based interventions we considered implementing...
- 1. **5 step hand washing technique**- between fingers, back of hands, back of fingers, finger tips, and thumbs. Technique implemented via multimedia visualization intervention.
 - Intervention school had significantly lower rates of absenteeism (0.0167) than control group in the 1st term of 2013-2014 academic year (0.028) (Lee et al., 2015).
- 2. **Educate students and teachers** about how infections are spread, how and when to wash hands vs. when to use hand sanitizer.
 - All months except for October and May had a difference between the experimental and control group that was statistically significant ($P < .05$) (Azor-martinez & Ernetina, 2014).

Importance of Handwashing Instruction

- ▶ Access to proper hand hygiene (sanitizer/soap) alone is not sufficient in decreasing absenteeism. Instruction on how to use hand hygiene resources is fundamental.
- ▶ A study was performed in two elementary schools in Chicago. In each of the schools, one group of students were given access to hand hygiene facilities while the other group was given access and also instructed on proper hand hygiene techniques every 2 months.
- ▶ The results showed that during flu season (Oct-Dec) the students who received instruction and access were absent due to illness 1.15% of days and those who solely had access with no instruction were absent due to illness 1.57% of days.

(Gupta et al., 2012)

Implementation Plan

- ▶ We believe the **5 step hand washing technique** would help us achieve the desired results in NYC public elementary school students ages 5-11.
- ▶ The research conducted on the 5 step hand washing technique and its impact on reducing illness absenteeism was originally conducted in Hong Kong on students ages 6-16 who had mild intellectual disabilities.
- ▶ We believe this intervention can be implemented smoothly into the NYC public elementary schools for students ages 5-11 with minor modifications to the multimedia visualization interventions so that they are more age appropriate for the students.

(Lee et al., 2015)

Implementation Plan (cont.)

- ▶ **5 Step Hand Washing Technique:** wash between fingers, back of hands, back of fingers, finger tips, and thumbs.
- ▶ **Implementation via multimedia visualization intervention** for the appropriate age groups:
 - (a) demonstrate technique to students
 - (b) play a 20 second hand washing song
 - (c) video for behavior modeling
 - (d) poster with visual cues of 5 steps
 - (e) reward (behavioral reinforcement)

(Lee et al., 2015)

How it would work...

- ▶ All teachers must attend an **information session** where the 5 step hand washing technique and the implementation plan will be discussed.
- ▶ **Age specific interventions:**
 - ▶ For **all age groups** (5-11 years old), teachers will demonstrate the technique to their students.
 - ▶ For **ages 5-7...**
 - ▶ a **video** modeling the behavior will be played
 - ▶ A 20 sec **hand washing song** will be played every time students wash their hands for the 1st week of implementation
 - ▶ A **reward** will be given once the student is able to demonstrate the correct hand washing technique

How it would work... (cont.)

- ▶ **Posters with visual cues** will be posted in the bathrooms near the sinks so that students can see it when washing their hands.
- ▶ Our intervention will be **implemented at the start of the school year** (within the 1st month) and **repeated annually** so that incoming students are educated about the importance of hand washing in reducing health related absenteeism.
- ▶ Additionally, **parents will be notified** about the intervention so that they encourage their child to practice the technique at home as well.

5 STEPS FOR A SAFE HAND WASH



Details about the implementation plan

- ▶ The program will be carried out by the **NYC Department of Education** under the chancellor- currently David C. Banks.
- ▶ The NYC DOE is responsible for ensuring students' health and safety and is responsible for implementing vaccination requirements and COVID-19 guidelines, making them the ideal department to implement our proposed intervention (*Health and Safety in Our Schools, n.d.*)
- ▶ **Stakeholders:** NYC DOE, principal and teachers in each school, parents and children attending NYC public elementary schools.
- ▶ **Resources such as staff** for the information sessions **and funding** for the posters, video and song, and rewards are needed and will be provided by the NYC DOE.

Tracking Success

- ▶ School Records
 - ▷ Schools already take daily attendance
 - ▶ Parents often report reason for absence to school staff
 - ▶ Analyze records to identify changes in absenteeism
 - ▶ Success = decreased overall absence rates and/or decrease in absences designated as due to illness analyzing within classes, entire grades, entire school, entire school system
 - ▷ Assess average math and reading scores at 6 months, 12 months and 2 years later
 - ▶ Success = overall improvement in the presence of decreased absentee rates

Tracking Success (continued)

- ▶ Surveys
 - ▶ **Teachers** - Surveys will address whether the program was implemented well, whether students have had fewer absences, and whether their students had increased performances
 - ▶ Beginning of the school year, middle of the school year, and end of the school year
 - ▶ **Parents** - regarding how they implemented the program at home, changes they noticed in their child's handwashing
 - ▶ Also collect information about parent absenteeism from work
 - ▶ **Students** - regarding their understanding of the importance of handwashing, whether they feel their classmates are present in school more often

Barriers and Limitations

- ▶ Implementation and Follow-Up Outside of School
 - ▷ Student and/or parental disinterest
 - ▷ At-home obstacles: Resources required, language barriers, survey follow-up
 - ▷ Variable after-school supervision, quality of cleaning products, etc
- ▶ Exposure to Outside of School Environments
 - ▷ After-school care, subway, etc
- ▶ Transmission via routes other than surfaces
 - ▷ Direct inhalation, mucous membranes, non-respiratory illnesses
- ▶ Obtaining consent for study
- ▶ Reporting and recording accurate attendance

The background is a deep blue color with several spherical virus particles scattered across it. A dark blue horizontal band runs across the middle of the image, containing the text. The virus particles are rendered in a lighter blue, semi-transparent style, showing their characteristic surface spikes.

Any questions?

Thank you!

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